

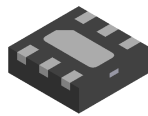
Features

- Low-Forward Voltage Drop
- Fast Switching
- Very High Density (Five Diode Elements in a Sub-Miniature Package)
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e.: parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please refer to the related automotive grade (Q-suffix) part. A listing can be found at <https://www.diodes.com/products/automotive/automotive-products/>.**
- This part is qualified to JEDEC standards (as references in AEC-Q) for High Reliability. <https://www.diodes.com/quality/product-definitions/>

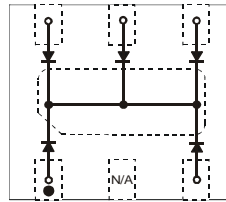
Mechanical Data

- Package: U-DFN1616-6
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Solderable per MIL-STD-202, Method 208 Lead Free Plating (NiPdAu Finish over Copper Leadframe)④
- Polarity: Pin 1 Dot and Center Pad Notch, See Diagram
- Weight: 0.004 grams (Approximate)

U-DFN1616-6



Bottom View

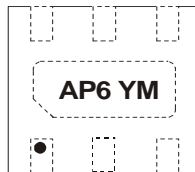

 Top View
Internal Schematic

Ordering Information (Note 4)

| Part Number | Package | Packing | |
|---------------|-------------|---------|-------------|
| | | Qty. | Carrier |
| MMBD4148PLM-7 | U-DFN1616-6 | 3000 | Tape & Reel |

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
 2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
 3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
 4. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information



AP6 = Product Type Marking Code
 YM = Date Code Marking
 Y = Year (ex: K = 2023)
 M = Month (ex: 9 = September)

Date Code Key

| Year | 2008 | ... | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|------|------|-----|------|------|------|------|------|------|------|------|------|------|
| Code | V | ... | K | L | M | N | P | R | S | T | U | V |

| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Code | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | O | N | D |

Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

| Characteristic | Symbol | Value | Unit |
|---|---------------------|-------------|------|
| Non-Repetitive Peak Reverse Voltage | V _{RM} | 100 | V |
| Peak Repetitive Reverse Voltage | V _{R(RM)} | 75 | V |
| Working Peak Reverse Voltage | V _{R(WM)} | | |
| DC Blocking Voltage | V _R | | |
| RMS Reverse Voltage | V _{R(RMS)} | 53 | V |
| Forward Continuous Current | I _{FM} | 300 | mA |
| Non-Repetitive Peak Forward Surge Current | I _{FSM} | @ t = 1.0μs | 2.0 |
| | | @ t = 1.0s | 1.0 |

Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|-----------------------------------|-------------|------|
| Power Dissipation (Note 5) | P _D | 500 | mW |
| Thermal Resistance Junction to Ambient Air (Note 5) | R _{θJA} | 256 | °C/W |
| Operating and Storage Temperature Range | T _J , T _{STG} | -55 to +150 | °C |

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

| Characteristic | Symbol | Min | Max | Unit | Test Condition |
|------------------------------------|--------------------|-----|-------|------|---|
| Reverse Breakdown Voltage (Note 6) | V _{(BR)R} | 75 | — | V | I _R = 100μA |
| Forward Voltage | V _F | — | 0.715 | V | I _F = 1.0mA |
| | | | 0.855 | | I _F = 10mA |
| | | | 1.0 | | I _F = 50mA |
| | | | 1.25 | | I _F = 150mA |
| Leakage Current (Note 6) | I _R | — | 1.0 | μA | V _R = 75V |
| | | | 50 | μA | V _R = 75V, T _J = +150°C |
| | | | 30 | μA | V _R = 25V, T _J = +150°C |
| | | | 25 | nA | V _R = 20V |
| Total Capacitance | C _T | — | 2.0 | pF | V _R = 0, f = 1.0MHz |
| Reverse Recovery Time | t _{RR} | — | 4.0 | ns | I _F = I _R = 10mA, I _{RR} = 0.1 x I _R , R _L = 100Ω |

- Notes:
- Part mounted on FR-4 PC board with recommended pad layout, which can be found on our website at <http://www.diodes.com/package-outlines.html>. Only one switching diode powered on.
 - Short duration pulse test used to minimize self-heating effect.

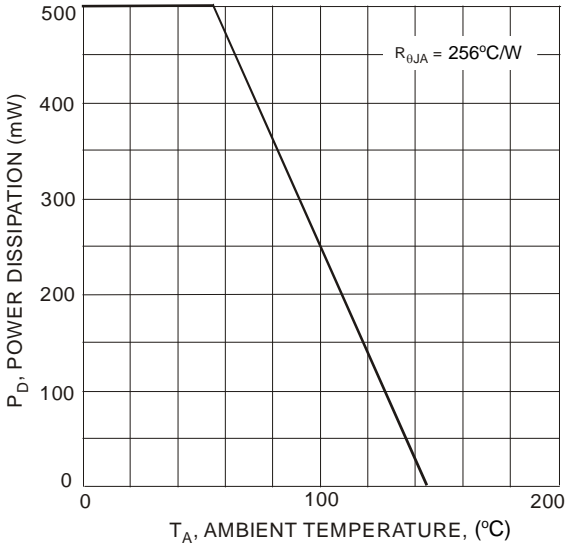


Fig. 1 Power Derating Curve

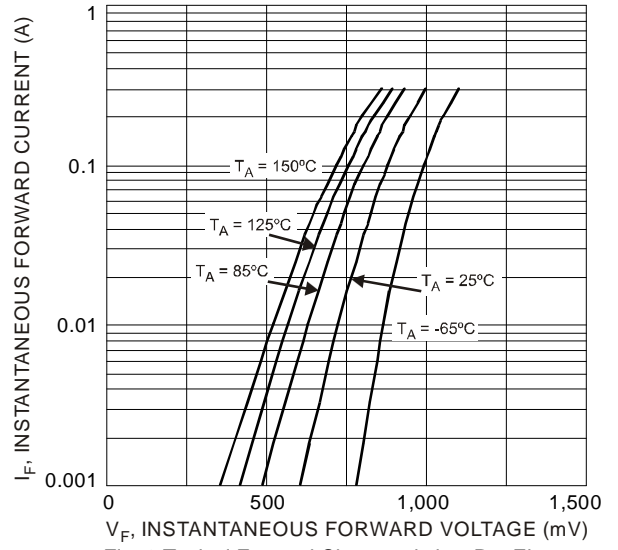


Fig. 2 Typical Forward Characteristics, Per Element

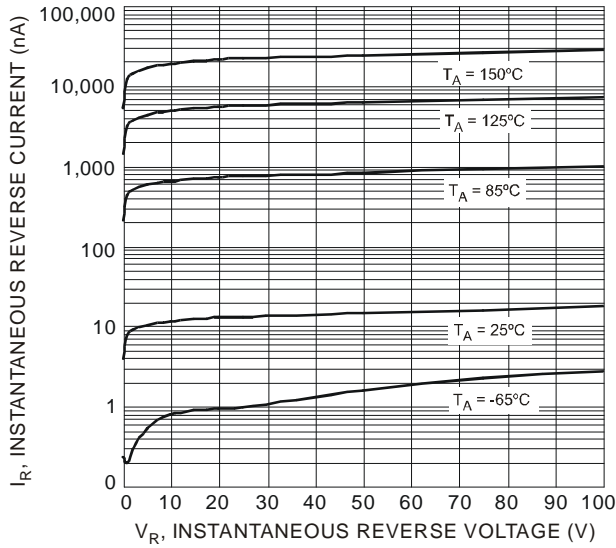


Fig. 3 Typical Reverse Characteristics, Per Element

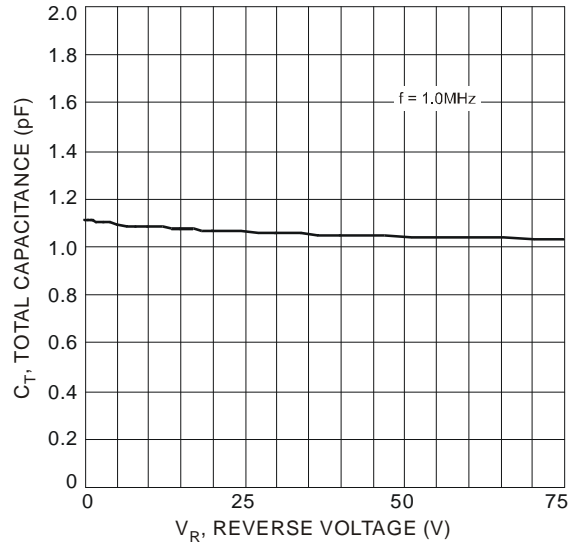
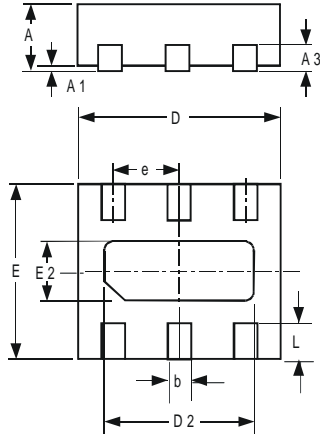


Fig. 4 Typical Capacitance vs. Reverse Voltage, Per Element

Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

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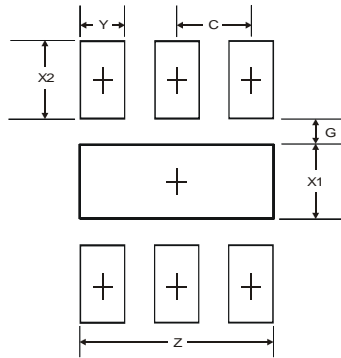


| U-DFN1616-6 | | | |
|----------------------|-------|-------|-------|
| Dim | Min | Max | Typ |
| A | 0.545 | 0.605 | 0.575 |
| A1 | 0 | 0.05 | 0.02 |
| A3 | — | — | 0.13 |
| b | 0.20 | 0.30 | 0.25 |
| D | 1.55 | 1.675 | 1.60 |
| D2 | 1.10 | 1.30 | 1.20 |
| E | 1.55 | 1.675 | 1.60 |
| e | — | — | 0.50 |
| E2 | 0.30 | 0.50 | 0.40 |
| L | 0.275 | 0.375 | 0.325 |
| All Dimensions in mm | | | |

Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

U-DFN1616-6



| Dimensions | Value (in mm) |
|------------|---------------|
| Z | 1.3 |
| G | 0.175 |
| X1 | 0.50 |
| X2 | 0.525 |
| Y | 0.30 |
| C | 0.50 |

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